

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11) EP 0 641 573 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
25.06.1997 Bulletin 1997/26

(51) Int. Cl.<sup>6</sup>: A61N 1/39

(43) Date of publication A2:  
08.03.1995 Bulletin 1995/10

(21) Application number: 94112555.1

(22) Date of filing: 11.08.1994

(84) Designated Contracting States:  
DE FR GB IT SE

(30) Priority: 31.08.1993 US 114574

(71) Applicant: VENTRITEX, INC.  
Sunnyvale, California 94086 (US)

(72) Inventor: Pless, Benjamin D.  
Atherton, California 94027 (US)

(74) Representative: Witte, Alexander, Dr.-Ing. et al  
Witte, Weller, Gahlert, Otten & Steil,  
Patentanwälte,  
Rotebühlstrasse 121  
70178 Stuttgart (DE)

(54) Method and apparatus for phase related cardiac defibrillation

(57) An implantable cardioverter/defibrillator and method for its use are disclosed. A sensing electrode (14, 16) provides an ECG signal to the defibrillator, this signal is amplified (12, 26) and evaluated for the presence of a tachyarrhythmia. The phase of the ECG signal is sensed during a detected fibrillation or tachycardia and this determines the phase of the stimulating output

signals. The ECG may be continuously sensed during the application of the defibrillating output and each output is held constant until a threshold crossing of the ECG is detected, whereupon the defibrillating output is changed

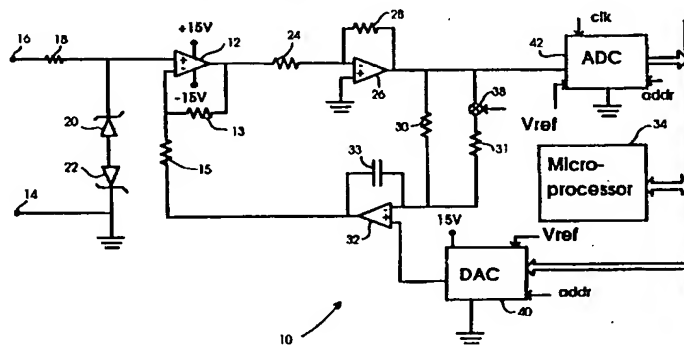


FIG. 1

EP 0 641 573 A3



European Patent  
Office

# PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 94 11 2555 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 998 531 A (CARDIAC PACEMAKERS, INC.)  * the whole document * ---	1-7, 12-14, 17-21	A61N1/39
A	US 4 967 747 A (VENTRITEX, INC.)  * the whole document * ---	1,2,5-7, 9,10,13, 14,16, 20,21	
A,P	EP 0 589 251 A (CARDIAC PACEMAKERS, INC.)  * column 4, line 5 - column 9, line 30 * -----	1,3,7,8, 13,15, 18-20	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A61N
INCOMPLETE SEARCH			
<p>The Search Division considers that the present European patent application does not comply with the provisions of the European Patent Convention to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of some of the claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
THE HAGUE		3 April 1997	Lemercier, D
CATEGORY OF CITED DOCUMENTS			
<p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.92 (P04C07)



European Patent Office

EP 94 11 2555 - C -

**INCOMPLETE SEARCH**

The Search Division considers that the present European patent application does not comply with the provisions of the European Patent Convention to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of some of the claims.

Claims searched completely: 1-21

Claims searched incompletely:

Claims not searched: 22-27

Reason for the limitation of the search: Method for treatment of the human or animal body by surgery or therapy (see Art. 52(4) of the European Patent Convention).

**THIS PAGE BLANK (USPTO)**